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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,022	09/29/2005	David A. Fish	GB 030037	8258
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EXAMINER				
MCCOMMAS, STUART S				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/551,022

**Applicant(s)**

FISH, DAVID A.

**Examiner**

Stuart McCommas

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (United States Patent Application Publication 2001/0055008), hereinafter referenced as Young, in view of Aoki et al. (United States Patent 4,760,389), hereinafter referenced as Aoki, and further in view of Cok et al. (United States Patent 6,320,325), hereinafter referenced as Cok.

Regarding claim 1, Young discloses an active matrix electroluminescent display device comprising an array of pixels (10), each pixel comprising:

an electroluminescent display element (20) (figure 2).

a drive transistor (22) for driving a current through the display element (figure 2).

a storage capacitor (24) for storing a voltage to be used for addressing the drive transistor (figure 2).

a discharge photosensitive element (40) for discharging the storage capacitor in dependence on the light output of the display element (figure 2).

However Young fails to disclose a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions, and which is connected to cancel photocurrents produced in the discharge photosensitive element by light from the other directions.

However the examiner maintains that it was well known in the art to provide a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions, and which is connected so as to cancel photocurrents produced in the discharge photosensitive element by light from the other directions, as taught by Aoki and Cok, respectively.

Regarding a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions, in a similar field of invention Aoki discloses a further photosensitive element 17 which is shielded from light emitted by the display element 15 while being exposed to light from other directions (column 2 lines 37-60; figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Young with Aoki by specifically providing a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions for the purpose of providing automatic brightness control by detecting ambient light to improve the quality of a display even as a display element degrades (column 1 lines 29-38).

Regarding a further photosensitive element which is connected so as to cancel photocurrents produced in the discharge photosensitive element by light from the other directions, in a similar field of invention Cok discloses a photo sensitive element 21 which in the absence of an energized emissive layer 50 is connected so as to compensate for and cancel photocurrents produced in the photo sensitive element 21 by ambient light (column 2 lines 50-67; column 3 lines 56-67; column 4 lines 1-30; figure 1; figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Young with Cok by specifically providing a photosensitive element which is connected so as to cancel photocurrents produced in the discharge photosensitive element by light from the other directions for the purpose of improving detection and control of light from a display element (column 2 lines 8-13).

Regarding claim 2, Young, Aoki and Cok, the combination discloses everything as applied in claim 1, further Young discloses that the drive transistor (22) is connected between a power supply line and the display element (figure 2).

Regarding claim 8, Young, Aoki and Cok, the combination discloses everything as applied in claim 1, further Young discloses that the pixel further includes an address transistor (26) connected between an input signal line (14) and an input to the pixel coupled to a node between the storage capacitor (36) and the gate of the drive transistor (figure 2).

Regarding claim 9, Young, Aoki and Cok, the combination discloses everything as applied in claim 1, further Young discloses that the device comprises a substrate (50), active matrix circuitry (figure 2; figures 3-5) comprising the pixel drive transistors, storage capacitors and photosensitive elements (paragraph 32) overlying the substrate (50), and wherein the pixel display elements comprise an electroluminescent layer (80) overlying the active matrix circuitry (figures 3-5).

3. Claims 3-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Aoki and in view of Cok and further in view of Knapp et al. (United States Patent 5,838,308), hereinafter referenced as Knapp.

Regarding claim 3, Young, Aoki and Cok, the combination discloses everything as applied in claim 1, further Young discloses that the discharge photosensitive element (40) is connected in parallel with the storage capacitor (36) between the power supply line and the gate of the drive transistor (figure 2).

However the combination fails to disclose wherein the further photosensitive element is connected in series with the discharge photosensitive element between the gate of the drive transistor and a reference potential.

However the examiner maintains that it was well known in the art to provide wherein the further photosensitive element is connected in series with the discharge photosensitive element between the gate of the drive transistor and a reference potential, as taught by Knapp.

In a similar field of invention Knapp discloses that the further photosensitive element 29 is connected in series with the discharge photosensitive element 28 between the gate of the drive transistor 27 and a reference potential on the reference potential line 14 (column 5 lines 36-67; figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Young, Aoki and Cok combination with Knapp by specifically providing wherein the further photosensitive element is connected in series with the discharge photosensitive element between the gate of the drive transistor and a reference potential for the purpose of controlling discharging excess charge on the storage capacitor due to ambient light to improve the performance of the display and to extend the life of the components of the display (column 2 lines 8-14).

Regarding claim 4, Young, Aoki, Cok and Knapp, the combination discloses everything as applied in claim 3, further Knapp discloses that the reference potential is provided by a reference potential line 14 shared by other pixels in the same row (column 5 lines 1-20; figure 2).

Regarding claim 5, Young, Aoki, Cok and Knapp, the combination discloses everything as applied in claim 4, further Young discloses wherein the pixels (10) are arranged in rows and columns with each row of pixels having a respective row address conductor (12) via which the row of pixels is selected in a row address phase (paragraph 23; figure 2), and wherein the pixels of a row share a respective reference potential line (32), and Knapp discloses that the reference potential is provided by a

reference potential line 14 shared by other pixels in the same row and associated with an adjacent row of pixels (column 5 lines 1-20; figure 2).

Regarding claim 6, Young, Aoki, and Cok, the combination discloses everything as applied in claim 1, however the combination fails to disclose wherein the discharge photosensitive element and the further photosensitive element comprise photodiodes.

However the Examiner maintains that it was well known in the art to provide wherein the discharge photosensitive element and the further photosensitive element comprise photodiodes, as taught by Knapp.

In a similar field of invention Knapp discloses that the discharge photosensitive element (photo diode 38) and the further photosensitive element (a second photo diode 38) are photo diodes (figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Young, Aoki and Cok combination with Knapp by specifically providing wherein the discharge photosensitive element and the further photosensitive element comprise photodiodes for the purpose of using photo diodes to detect light from a display to improve the performance of the display and to minimize the size of the display pixels (column 2 lines 8-14).

Regarding claim 7, Young, Aoki, and Cok, the combination discloses everything as applied in claim 1, however the combination fails to disclose wherein the discharge photosensitive element and the further photosensitive element comprise diode-connected transistors.



However the Examiner maintains that it was well known in the art to provide wherein the discharge photosensitive element and the further photosensitive element comprise diode-connected transistors, as taught by Knapp.

In a similar field of invention Knapp discloses that the discharge photosensitive element 28 and the further photosensitive element 29 comprise diode-connected transistors (column 5 lines 60-67).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Young, Aoki and Cok combination with Knapp by specifically providing wherein the discharge photosensitive element and the further photosensitive element comprise diode-connected transistors for the purpose of using photo transistors to detect light from a display to improve the performance of the display and to minimize the size of the display pixels (column 2 lines 8-14).

Regarding claim 10, Young, Aoki, Kok and Knapp, the combination discloses everything as applied in claim 9, however the combination fails to disclose wherein the discharge photosensitive element and the further photosensitive element in each pixel are arranged close together.

However the Examiner maintains that it was well known in the art to provide wherein the discharge photosensitive element and the further photosensitive element in each pixel are arranged close together, as taught by Knapp.

In a similar field of invention Knapp discloses that the discharge photosensitive element 28 and the further photosensitive element 29 in each pixel are arranged close together (figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Young, Aoki and Cok combination with Knapp by specifically providing wherein the discharge photosensitive element and the further photosensitive element in each pixel are arranged close together for the purpose of detecting light for each individual pixel to improve the performance of the display and to minimize the size of the display pixels to increase the quality of the display image (column 2 lines 8-14).

4. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Aoki and in view of Cok and further in view of Sato et al. (United States Patent Application Publication 2004/0017162), hereinafter referenced as Sato.

Regarding claim 11, Young, Aoki and Cok, the combination discloses everything as applied in claim 9, further Young discloses wherein the pixel display elements include a transparent conductive electrode layer (70) between the electroluminescent layer and the active matrix circuitry (paragraph 36) and wherein the discharge photosensitive element 40 is exposed to light generated in the overlying electroluminescent layer 80 (paragraph 41).

However the combination fails to disclose wherein a light shield is arranged in each pixel between the further photosensitive element and the overlying

electroluminescent layer to shield the further photosensitive element from light directly from the electroluminescent layer.

However the examiner maintains that it was well known in the art to provide wherein a light shield is arranged in each pixel between the further photosensitive element and the overlying electroluminescent layer to shield the further photosensitive element from light directly from the electroluminescent layer, as taught by Sato.

In a similar field of invention Sato discloses that a light shield is arranged in each pixel between the further photosensitive elements in adjacent pixels and the overlying electroluminescent layer to shield the further photosensitive elements from light directly from the electroluminescent layer (paragraph 13; paragraphs 80-81; paragraph 113; claim 1; figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Young, Aoki, and Cok combination with Sato by specifically providing wherein a light shield is arranged in each pixel between the further photosensitive element and the overlying electroluminescent layer to shield the further photosensitive element from light directly from the electroluminescent layer for the purpose of shielding adjacent pixel circuitry from strong light irradiated by a pixel to improve the performance of the display (paragraph 81).

Regarding claim 12, Young, Aoki, Cok and Sato, the combination discloses everything as applied in claim 11, further Young discloses that the pixel display

elements include a light opaque electrode layer 82 at the side of the electroluminescent layer remote from the active matrix circuitry (paragraph 48; figure 4).

Regarding claim 13, Young, Aoki, Cok and Sato, the combination discloses everything as applied in claim 11, further Young discloses that the pixel display elements include a second transparent electrode layer (56 and 60) at the side of the electroluminescent layer remote from the active matrix circuitry (paragraphs 40-41; figures 4-5), and wherein a further light shield (90) is arranged on the second transparent electrode layer (60) and overlying the discharge photosensitive element 40 of a pixel (paragraphs 49-50; figure 5).

#### ***Response to Arguments***

5. Applicant's arguments filed 7/1/2008 have been fully considered but they are not persuasive.

On pages 5-7, the Applicant argues that Aoki fails to disclose a further photosensitive element which is shielded from light emitted by the display and that Cok fails to disclose a photosensitive element is connected to cancel photocurrents produced in the discharge photosensitive element by light from the other directions.

The Examiner respectfully disagrees, because as stated previously Aoki discloses a further photosensitive element 17 which is shielded from light emitted by the display element 15 using a light blocking layer 23 which blocks light from the display element 15 on the back side of the display while being exposed to light from other directions (column 2 lines 37-64; figure 1), and Cok discloses a photo sensitive element 21 which in the absence of an energized emissive layer 50 is connected so as to

compensate for and cancel photocurrents produced in the photo sensitive element 21 by ambient light or light from other directions (column 2 lines 50-67; column 3 lines 56-67; column 4 lines 1-30; figure 1; figure 2). Both of these features are clearly well known in the art and could be combined with Young as stated in the above rejection.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached on (571)272-3638 . The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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